EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	33	serine adj dehydratase and mutant and corynebacterium	US-PGPUB; USPAT; DERWENT	OR	ON	2007/08/04 14:51
L2	31	l1 and gene	US-PGPUB; USPAT; DERWENT	OR	ON	2007/08/04 14:51
L3	31	l1 and nucleic adj acid	US-PGPUB; USPAT; DERWENT	OR	ON	2007/08/04 14:51

FORMAT

=> d ibib abs l3 1-7

L3 ANSWER 1 OF 7 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN
ACCESSION NUMBER: 1989:380139 BIOSIS
DOCUMENT NUMBER: PREV198988060729; BA88:60729
TITLE: EFFECTS OF L SERINE DEHYDRATASE ACTIVITY ON L SERINE PRODUCTION BY CORYNEBACTERIUM -GLYCINOPHILUM AND AN EXAMINATION OF THE PROPERTIES OF THE ENZYME.
AUTHOR(S): KUBOTA K [Reprint author]; YOKOZEKI K; OZAKI H
CORPORATE SOURCE: CENTRAL RES LAB AIJONOMOTO CO INC, 1-1, SUZUKI-CHO, KAWASAKI-KU, KAWASAKI, KANAGAWA 210, JPN
SOURCE: Journal of Fermentation and Bioengineering, (1989) Vol. 67, No. 6, pp. 391-394.
CODEN: JFBIEX. ISSN: 0922-338X.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH
ENTRY DATE: Entered STN: 17 Aug 1989
Last Updated on STN: 23 Sep 1989

AB The results with Corynebacterium glycinophilum AJ-370 and various mutants from AJ-3170 indicated that L-serine production was almost inversely proportional to L-serine degrading activity. The crude extract of the parental strain, AJ-3170, showed L-serine and L-threonine degrading activities. The 2 activities were completely separated from each other by gel-filtration, indicating that each activity comes from a different enzyme. The L-serine degrading enzyme, L-serine dehydratase (SD), was purified 30-fold from AJ-3170. Molecular weight of SD was 130,000. The enzyme was specific for L-serine, activated slightly by FeCl2 and inhibited by MnCl2. The double reciprocal plots of SD rate against substrate concentration gave an upwards-curved line. The value of [S]0.5 was 35 mM.

L3 ANSWER 2 OF 7 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN
ACCESSION NUMBER: 1985:342296 BIOSIS
DOCUMENT NUMBER: PREV198580012288; BA80:12288
TITLE: IMPROVED PRODUCTION OF L SERINE BY MUTANTS OF CORYNEBACTERIUM-GLYCINOPHILUM WITH LESS SERINE DEHYDRATASE EC-4.2.1.13 ACTIVITY.
AUTHOR(S): KUBOTA K [Reprint author]
CORPORATE SOURCE: CENTRAL RESEARCH LABORATORIES, AJINOMOTO CO INC, 1-1 SUZUKI-CHO, KAWASAKI-KU, KAWASAKI, KANAGAWA 210, JAPAN
SOURCE: Agricultural and Biological Chemistry, (1985) Vol. 49, No. 1, pp. 7-12.
CODEN: ABCHA6. ISSN: 0002-1369.
DOCUMENT TYPE: Article
FILE SEGMENT: BA
LANGUAGE: ENGLISH

AB Fermentative production of L-serine using glycine as a precursor and C. glycinophilum as a microbial producer was improved by decreasing the enzymatic degradation of L-serine. The cellular activity of L-serine dehydratase (SD) [EC 4.2.1.13], which was responsible for the L-serine degradation, was decreased in mutants that could not assimilate L-serine as a N source or that required amino acids for their growth. Typical examples of the mutants were an L-leucine and L-isoleucine auxotroph (AJ-3414) which completely lacked SD and an L-leucine and L-methionine auxotroph (AJ-3413) whose SD activity was 32% of that of the parent. They accumulated 13.8 and 13.9 mg/ml of L-serine, respectively, from 30 mg/ml of glycine with a production yield of 46%, as compared to the parental productivity of 15.3%.

L3 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:556884 CAPLUS
DOCUMENT NUMBER: 141:156155
TITLE: Study of glycolysis and L-serine metabolism in Corynebacterium glutamicum
AUTHOR(S): Netzer, Roman
CORPORATE SOURCE: Inst. fuer Biotechnologie, Juelich, 4130, Germany
SOURCE: Berichte des Forschungszentrums Juelich (2004), Juel-4130, i-xii, 1-141
CODEN: FJBEE5; ISSN: 0944-2952
DOCUMENT TYPE: Report
LANGUAGE: German
AB The amino acid L-serine is a central metabolite in the metabolism and of increasing importance for the industrial use. The aim of this work was to investigate if L-serine can be produced biotechnol. by Corynebacterium glutamicum and to study the influence of L-serine degradation and the provision of glycolytic precursors. To improve the availability of glycolytic precursors for the L-serine biosynthesis, a pyruvate kinase and 3-phosphoglycerate mutase deletion mutant was constructed. It could be shown that pyruvate kinase is essential for growth both on the non PTS (phosphotransferase system) sugar ribose and on the gluconeogenetic substrates acetate and citrate. Global gene expression analyses and enzyme assays with a suppressor mutant showed, that the growth of the pyruvate kinase mutant on acetate and citrate could be restored by overexpression of the mez gene encoding the malic enzyme. Further it was shown, that the pyruvate kinase mutant accumulates glycolytic precursors for L-serine biosynthesis. To inactivate the 3-phosphoglycerate mutase, the functional expressed gene was identified by sequence anal. and growth expts. A pgm deletion mutant was only able to grow in presence of both a glycolytic and a gluconeogenetic substrate. Thereby, the non-PTS sugar maltose was metabolized preferentially to glucose that is taken up via a PTS system. It has been shown that the mutant accumulates the unphosphorylated L-serine precursor glycerate. To investigate the L-serine degradation the L-serine dehydratase encoding gene was identified in the C. glutamicum genome by sequence comparison. The subsequent deletion of the sdaA gene resulted in a 1.8-fold decreased L-serine degradation rate in comparison to the wild type but the overexpression of sdaA led to a 2-fold increased degradation rate. Interestingly, the overexpression of sdaA enabled C. glutamicum to grow on L-serine. The deletion of the sdaA gene in a C. glutamicum strain overexpressing the L-serine biosynthesis genes revealed a 960-fold gain of the L-serine accumulation. After an addnl. deletion of either the 3-phosphoglycerate mutase or pyruvate kinase encoding gene, a further increase of the L-serine formation was found. Further it was shown that the deletion of sdaA and the simultaneous reduction of the serine hydroxymethyltransferase activity, another L-serine converting enzyme, in a strain overexpressing the L-serine biosynthesis genes, led to a tremendous increase of L-serine accumulation up to 100 mM.
REFERENCE COUNT: 178 THERE ARE 178 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1989:473562 CAPLUS
DOCUMENT NUMBER: 111:73562
TITLE: Effects of L-serine dehydratase activity on L-serine production by Corynebacterium glycinophilum and an examination of the properties of the enzyme
AUTHOR(S): Kubota, Koji; Yokozeki, Kenzo; Ozaki, Hachiro
CORPORATE SOURCE: Cent. Res. Lab., Ajinomoto Co., Inc., Kawasaki, 210, Japan
SOURCE: Journal of Fermentation and Bioengineering (1989),

67(6), 391-4
CODEN: JFBIEX; ISSN: 0922-338X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The results with C. glycinophilum AJ-3170 and various mutants from AJ-3170 indicated that L-serine production was almost inversely proportional to L-serine degrading activity. The crude extract of the parental strain, AJ-3170, showed L-serine and L-threonine degrading activities. The 2 activities were completely separated from each other by gel filtration, indicating that each activity comes from a different enzyme. The L-serine-degrading enzyme, L-serine dehydratase (SD), was purified 30-fold from AJ-3170. The mol. weight of SD was 130,000. The enzyme was specific for L-serine, activated slightly by FeCl2, and inhibited by MnCl2. The double reciprocal plots of SD rate against substrate concentration gave an upwards-curved line. The value of [S]0.5 was 35 mM.

L3 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1985:147428 CAPLUS
DOCUMENT NUMBER: 102:147428
TITLE: Improved production of L-serine by mutants of Corynebacterium glycinophilum with less serine dehydratase activity
AUTHOR(S): Kubota, Koji
CORPORATE SOURCE: Cent. Res. Lab., Ajinomoto Co., Inc., Kawasaki, 210, Japan
SOURCE: Agricultural and Biological Chemistry (1985), 49(1), 7-12
CODEN: ABCHA6; ISSN: 0002-1369
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Fermentative production of L-serine [56-45-1] using glycine [56-40-6] as a precursor and C. glycinophilum as a microbial producer was improved by decreasing the enzymic degradation of L-serine. The cellular activity of L-serine dehydratase [EC 4.2.1.13] (SD) [9014-27-1], which was responsible for serine degradation, was decreased in mutants that could not assimilate L-serine as a N source or that required amino acids for growth. Typical examples of the mutants were an L-leucine and L-isoleucine auxotroph (AJ-3413) whose SD activity was 32% of that of the parent. They accumulated 13.8 and 13.9 mg L-serine/mL, resp., from 30 mg glycine/mL, with a production yield of 46%, compared to the parenteral productivity of 15.3%.

L3 ANSWER 6 OF 7 LIFESCI COPYRIGHT 2007 CSA on STN
ACCESSION NUMBER: 85:10269 LIFESCI
TITLE: Improved production of L-serine by mutants of Corynebacterium glycinophilum with less serine dehydratase activity.
AUTHOR: Kubota, K.
CORPORATE SOURCE: Cent. Res. Lab., Ajinomoto Co., Inc., 1-1, Suzuki-cho, Kawasaki-ku, Kawasaki, Kanagawa 210, Japan
SOURCE: AGRIC. BIOL. CHEM., (1985) vol. 49, no. 1, pp. 7-12.
DOCUMENT TYPE: Journal
FILE SEGMENT: J; A; W
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Fermentative production of L-serine using glycine as a precursor and Corynebacterium glycinophilum as a microbial producer was improved by decreasing the enzymatic degradation of L-serine. The cellular activity of L-serine dehydratase (SD) which was responsible for the L-serine degradation, was decreased in mutants that could not assimilate L-serine as a nitrogen source or that required amino acids for their growth. Typical examples of the mutants

were an L-leucine and L-isoleucine auxotroph (AJ-3414) which completely lacked SD and an L-leucine and L-methione auxotroph (AJ-3413) whose SD activity was 32% of that of the parent. They accumulated 13.8 and 13.9 mg/ml of L-serine, respectively, from 30 mg/ml of glycine with a production yield of 46% as compared to the parental productivity of 15.3%.

L3 ANSWER 7 OF 7 LIFESCI COPYRIGHT 2007 CSA on STN
ACCESSION NUMBER: 85:9306 LIFESCI
TITLE: Microorganism strains for the fermentative preparation of L-serine.
AUTHOR: Lovinger, G.G.; Whitehead, S.A.
CORPORATE SOURCE: W.R. Grace and Co., New York, NY (USA)
PATENT INFO.: US 4528273 1985
SOURCE: (1985) . US Cl. 435/116; Int. Cl. C12P 13/06, C12R 1/15..
DOCUMENT TYPE: Patent
FILE SEGMENT: A; W
LANGUAGE: English

AB A patent is described for improving a strain of Corynebacterium glycinophilum which is capable of converting glycine to L-serine by introducing mutations into the organism for serine dehydratase negativity and resistance to at least of the amino acid analogs (serine hydroxamate, glycine hydroxamate or methionine hydroxamate. A process is described for the fermentation of glycine to L-serine by the improved bacteria.

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=> s serine (w) dehydratase and mutant and corynebacterium and gene
L1            1 SERINE (W) DEHYDRATASE AND MUTANT AND CORYNEBACTERIUM AND GENE

=> s l1 and nucleic
L2            0 L1 AND NUCLEIC

=> s serine (w) dehydratase and mutant and corynebacterium
L3            7 SERINE (W) DEHYDRATASE AND MUTANT AND CORYNEBACTERIUM

=> d ibib abs l1

L1   ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2004:556884  CAPLUS
DOCUMENT NUMBER:          141:156155
TITLE:                    Study of glycolysis and L-serine metabolism in
                          Corynebacterium glutamicum
AUTHOR(S):                Netzer, Roman
CORPORATE SOURCE:         Inst. fuer Biotechnologie, Juelich, 4130, Germany
SOURCE:                   Berichte des Forschungszentrums Juelich (2004),
                          Juel-4130, i-xii, 1-141
                          CODEN: FJBEE5; ISSN: 0944-2952
DOCUMENT TYPE:            Report
LANGUAGE:                 German
AB   The amino acid L-serine is a central metabolite in the metabolism and of
     increasing importance for the industrial use.  The aim of this work was to
     investigate if L-serine can be produced biotechnol. by
     Corynebacterium glutamicum and to study the influence of L-serine
     degradation and the provision of glycolytic precursors.  To improve the
     availability of glycolytic precursors for the L-serine biosynthesis, a
     pyruvate kinase and 3-phosphoglycerate mutase deletion mutant
     was constructed.  It could be shown that pyruvate kinase is essential for
     growth both on the non PTS (phosphotransferase system) sugar ribose and on
     the gluconeogenetic substrates acetate and citrate.  Global gene
     expression analyses and enzyme assays with a suppressor mutant
     showed, that the growth of the pyruvate kinase mutant on acetate
     and citrate could be restored by overexpression of the mez gene
     encoding the malic enzyme.  Further it was shown, that the pyruvate kinase
     mutant accumulates glycolytic precursors for L-serine
     biosynthesis.  To inactivate the 3-phosphoglycerate mutase, the functional
     expressed gene was identified by sequence anal. and growth
     expts.  A pgm deletion mutant was only able to grow in presence
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     non-PTS sugar maltose was metabolized preferentially to glucose that is
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     accumulates the unphosphorylated L-serine precursor glycerate.  To
     investigate the L-serine degradation the L-serine
     dehydratase encoding gene was identified in the C.
     glutamicum genome by sequence comparison.  The subsequent deletion of the
     sdaA gene resulted in a 1.8-fold decreased L-serine degradation rate
     in comparison to the wild type but the overexpression of sdaA led to a
     2-fold increased degradation rate.  Interestingly, the overexpression of sdaA
     enabled C. glutamicum to grow on L-serine.  The deletion of the sdaA
     gene in a C. glutamicum strain overexpressing the L-serine
     biosynthesis genes revealed a 960-fold gain of the L-serine
     accumulation.  After an addnl. deletion of either the 3-phosphoglycerate
     mutase or pyruvate kinase encoding gene, a further increase of
     the L-serine formation was found.  Further it was shown that the deletion
     of sdaA and the simultaneous reduction of the serine hydroxymethyltransferase
     activity, another L-serine converting enzyme, in a strain overexpressing
     the L-serine biosynthesis genes, led to a tremendous increase of
     L-serine accumulation up to 100 mM.
REFERENCE COUNT:          178   THERE ARE 178 CITED REFERENCES AVAILABLE FOR
                                THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
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